

CLAIMS

I claim:

[0019] 1. A self locking chuck for engaging the hollow core of a tubular roll of material comprising:

- 5 [0020] a. a center trunnion having a central axis of rotation and a plurality of flat peripheral surfaces;
- [0021] b. a rotatable cage surrounding the trunnion and having a plurality of apertures for receiving moveable lug members;
- 10 [0022] c. said moveable lug members having each an outer surface for engaging the hollow core and an inner surface defining a radial space with respect to each flat peripheral surface of said trunnion;
- [0023] d. a roller assembly for forcing the lug members in a radially outward direction in response to torque in either direction comprising first and second synchronizing rings positioned at each end of said cage, said rings having first and second sets of
- 15 recesses for holding a plurality of rotatable cylindrical roller bars extending between said first and second synchronizing rings, the roller bars being disposed each respectively in the radial space between each said flat peripheral surface and the inner arcuate surface of each of said lug members.

20 [0024] 2. The self-locking chuck of claim 1 wherein each inner arcuate surface has a radius of curvature which has a center displaced from said central axis of rotation.

[0025] 3. The self-locking chuck of claim 1 wherein the lug members are held loosely in the cage retained by flange elements at the corners of said lug members.

25 [0026] 4. A self-locking chuck for engaging the hollow core of a tubular roll of material comprising:

- [0027] a. a center trunnion having a central axis of rotation and a plurality of flat peripheral surfaces;
- 30 [0028] b. a cage surrounding the trunnion and rotatable with respect thereto;
- [0029] c. a plurality of lugs enclosed in the cage and radially moveable therein, each lug having an outer surface for engaging the hollow core and an inner surface, said inner surface having a radius of curvature, with a center offset from said central

axis of rotation of said trunnion;

[0030] d. a plurality of roller bearing elements interacting between the inner surface of each lug and a respective flat peripheral surface to expand said lugs radially in response to torque in either direction.

5

[0031] 5. The self-locking chuck of claim 4 wherein said roller bearing elements are cylindrical roller bars extending axially with respect to said trunnion.

10

[0032] 6. The self-locking chuck of claim 5 further including a pair of synchronizing rings having apertures for receiving opposite ends of said roller bars.

[0033] 7. The self-locking chuck of claim 5 wherein the lug members are held loosely in the cage retained by flange elements at the corners of said lug members.

15

[0034] 8. The self-locking chuck of claim 4 wherein there are three roller bearing elements.

[0035] 9. The self-locking chuck of claim 1 wherein there are three cylindrical roller bars.

20

[0036] 10. The self-locking chuck of claim 2 wherein the radius of curvature of each inner surface is smaller than a radius of the chuck at the outer surfaces of the lug members.